

CLAIMS

What is claimed is:

- 1 1. A method for measuring long-term arrival rates of data
2 samples on an asynchronous transport network, the
3 method comprising the steps of:
4 counting a known and predetermined number of data
5 samples in a session;
6 measuring a time interval between the arrival of a
7 first data sample and the arrival of a last
8 data sample in said session; and
9 calculating a long-term average arrival rate of
10 said data samples by dividing said known and
11 predetermined number of data samples by said
12 measured time interval of said session.
- 13 2. The method of Claim 1 wherein the data samples are
14 contained within a plurality of data packets.
- 15 3. The method of Claim 1 wherein said session is a session
16 with the largest number of said data samples in a set
17 of sessions.

1 4. A method for synchronizing a first clock rate of a
2 network clock to a second clock rate of a receiver
3 clock on an asynchronous transport network, the method
4 comprising the steps of:

5 counting a known and predetermined number of data
6 samples in a session;
7 measuring a time interval between the arrival of a
8 first data sample and the arrival of a last
9 data sample in said session;
10 calculating a long-term average arrival rate of
11 said data samples by dividing said known and
12 predetermined number of data samples by said
13 measured time interval of said session;
14 counting clock pulses output from said receiver
15 clock to determine a value for said second
16 clock rate;
17 calculating a clock rate error variable, said
18 variable being equal to the difference between
19 said calculated long-term average arrival rate
20 and said second clock rate of said receiver
21 clock; and
22 adjusting said second clock rate of said receiver
23 clock by an amount equal to said clock rate
24 error variable.

1 5. The method of Claim 4 wherein the data samples are
2 contained within a plurality of data packets.

1 6. The method of Claim 4 wherein said session is a session
2 with the largest number of said data samples in a set
3 of sessions.

1 7. The method of Claim 4 wherein said long-term average
2 arrival rate is an average rate of a number of
3 different sessions.

1 8. The method of Claim 4 wherein said long-term average
2 arrival rate is a time-weighted average of previous
3 sessions.

1 9. The method of Claim 4 wherein the step of adjusting
2 said second clock rate, having a frequency R, comprises
3 dividing down said frequency R of said second clock
4 rate by a factor Z, such that said adjusted second
5 clock rate is R/Z.

1 10. A system for measuring long-term arrival rates of
2 data samples on an asynchronous transport network, the
3 system comprising:

4 means for counting a known and predetermined
5 number of data samples in a session;
6 means for measuring a time interval between the
7 arrival of a first data sample and the arrival
8 of a last data sample in said session; and
9 means for calculating a long-term average arrival
10 rate of said data samples by dividing said
11 known and predetermined number of data samples
12 by said measured time interval of said session.

1 11. The system of Claim 10 wherein the data samples are
2 contained within a plurality of data packets.

1 12. The system of Claim 10 wherein said session is a
2 session with the largest number of said data samples in
3 a set of sessions.

1 13. A system for synchronizing a first clock rate of a
2 network clock to a second clock rate of a receiver
3 clock on an asynchronous transport network, the system
4 comprising:

5 means for counting a known and predetermined
6 number of data samples in a session;
7 means for measuring a time interval between the
8 arrival of a first data sample and the arrival
9 of a last data sample in said session;
10 means for calculating a long-term average arrival
11 rate of said data samples by dividing said
12 known and predetermined number of data samples
13 by said measured time interval of said session;
14 means for counting clock pulses output from said
15 receiver clock to determine a value for said
16 second clock rate;
17 means for calculating a clock rate error variable,
18 said variable being equal to the difference
19 between said calculated long-term average
20 arrival rate and said second clock rate of said
21 receiver clock; and
22 means for adjusting said second clock rate of said
23 receiver clock by an amount equal to said clock
24 rate error variable.

1 14. The system of Claim 13 wherein the data samples are
2 contained within a plurality of data packets.

1 15. The system of Claim 13 wherein said session is a
2 session with the largest number of said data samples in
3 a set of sessions.

1 16. The system of Claim 13 wherein said long-term average
2 arrival rate is an average rate of a number of
3 different sessions.

1 17. The system of Claim 13 wherein said long-term average
2 arrival rate is a time-weighted average of previous
3 sessions.

1 18. The system of Claim 13 wherein the step of adjusting
2 said second clock rate, having a frequency R, comprises
3 dividing down said frequency R of said second clock
4 rate by a factor Z, such that said adjusted second
5 clock rate is R/Z.

1 19. A machine-readable medium having embodied thereon a
2 program, said program being executable by an electronic
3 device to perform method steps for measuring and
4 calculating long-term arrival rates of data samples on
5 an asynchronous transport network, the method steps
6 comprising:
7
8 counting a known and predetermined number of data
9 samples in a session;
10 measuring a time interval between the arrival of a
11 first data sample and the arrival of a last
12 data sample in said session; and
13 calculating a long-term average arrival rate of
14 said data samples by dividing said known and
15 predetermined number of data samples by said
measured time interval of said session.

1 20. The machine-readable medium of Claim 19 wherein the
2 data samples are contained within a plurality of data
3 packets.

1 21. The machine-readable medium of Claim 19 wherein said
2 session is a session with the largest number of said
3 data samples in a set of sessions.

1 22. A machine-readable medium having embodied thereon a
2 program, said program being executable by an electronic
3 device to perform method steps for synchronizing a
4 first clock rate of a network clock to a second clock
5 rate of a receiver clock on an asynchronous transport
6 network, the method steps comprising:

7 counting a known and predetermined number of data
8 samples in a session;
9 measuring a time interval between the arrival of a
10 first data sample and the arrival of a last
11 data sample in said session;
12 calculating a long-term average arrival rate of
13 said data samples by dividing said known and
14 predetermined number of data samples by said
15 measured time interval of said session;
16 counting clock pulses output from said receiver
17 clock to determine a value for said second
18 clock rate;
19 calculating a clock rate error variable, said
20 variable being equal to the difference between
21 said calculated long-term average arrival rate
22 and said second clock rate of said receiver
23 clock; and
24 adjusting said second clock rate of said receiver
25 clock by an amount equal to said clock rate
26 error variable.

1 23. The machine-readable medium of Claim 22 wherein the
2 data samples are contained within a plurality of data
3 packets.

1 24. The machine-readable medium of Claim 22 wherein said
2 session is a session with the largest number of said
3 data samples in a set of sessions.

1 25. The machine-readable medium of Claim 22 wherein said
2 long-term average arrival rate is an average rate of a
3 number of different sessions.

1 26. The machine-readable medium of Claim 22 wherein said
2 long-term average arrival rate is a time-weighted
3 average of previous sessions.

1 27. The machine-readable medium of Claim 22 wherein the
2 step of adjusting said second clock rate, having a
3 frequency R, comprises dividing down said frequency R
4 of said second clock rate by a factor Z, such that said
adjusted second clock rate is R/Z .

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